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CENTRAL INTELLIGENCE AGENCY

INFORMATION FROM FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT CD NO.

COUNTRY China

Economic - Industry, roller and ball bearings SUBJECT

DATE OF INFORMATION

1950

HOW

PUBLISHED Monthly periodical

DATE DIST. 26 Feb 1954

WHERE

LANGUAGE

PUBLISHED Mukden

NO. OF PAGES 6

DATE

PUBLISHED 11 Sep 1950 Chinese

SUPPLEMENT TO

REPORT NO.

HE UNITED STATES, BITMIN THE WEARING OF TITLE 18. SECTIONS 7: ND 784, OF THE U.S. CODE. AS AMENDED. ITS TRANSHISSION OR BEVE Ation of its contents to or receipt by an unauthorized person i

THIS IS UNEVALUATED INFORMATION

SOURCE

Tung-pei Kung-yeh, No 34, 1950

HIGH RATE OF REJECTION OF ROLLER AND BALL BEARINGS MANUFACTURED BY FU-SHUN AND PEN-CH'I PLANTS

Comment and Summary: The following report summarizes an article "Report on the Survey of Roller and Ball Bearing Quality and Production Problems in the Fu-shun and Pen-ch'i Iron and Steel Plant," by Yeh Chinshih, published in the Tung-pei Kung-yeh (Northeast Industry), 11 September 1950. This report shows roller and ball bearing production for January-June 1950 in the Fu-shun and the Pen-ch'i Iron and Steel Plants and gives data on rejected goods.

Yeh Chin-shih is a member of the Industrial Planning Office of the Northeast Administrative area_7

Roller and Ball Bearing Production, January-June 1950

The inspection work of the Fu-shun and Pen-ch'i Iron and Steel Plants has not been efficient. The amount of rejected goods found after the goods left the plants was greater than the amount of rejected goods indicated by the plants during inspection. Statistics for January-June 1950 show the following:

	Rejected Goods Found Prior to Goods Leaving the Plant (%)	Rejected Goods Found After Goods Left Plant (\$)	Comparison Between Col- umns 1 and 2	
Fu-shun	8.54	14.07	1.5 times	
Pen-ch'i	2.61	14.88	5 times	

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The reasons for the rejection of goods in these plants are as f llows:

- 1. Chemical elements not up to standard
- 2. Foreign substances found in the steel
- 3. Occurrence of white spots and cracks in the finished product
- 4. Abnormal formation of steel
- 5. Loss of carbon content
- 6. Lank of firmers of the finished product
- 7. Cracks and black spots on the surface of the finished product
- 8. Incorrect dimensions of the finished product

Data in tabulated form follows on the next page?



- 2 -

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1. Roller and Ball Bearing Production in Fu-shun Tron and Steel Plant

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							Reasc	ns for ar	nd Weight of	Rejected	Goods (1	tons)		
		1950	Production (tons)	Qualified Goods (tons)	Qualified Goods (%)	Pits Caused By Sand	Portions of Ball Bearings Sheared	Shrink- age	Incorrect Dimensions	Air Bubbles	Cracks	Chemical Reasons	Total	Rate of Rejected Goods (%)
		Jan	135.356	121.656	89.8	5.655						8.045	13.700	
		Feb	145.815	139.215	96.0					V.			6.600	
	Mar	92 .7 15	81.860	88.5	8.57 5	2.280			j.			10.855		
8		Apr	99•750	83.165	83.7	7.125	2.335			ļi.		7.125	16.585	16.3
- 3 -	May	80.560	78.205	97.1	0.845	0.510							-	
	Jun	63.550	60.905	95•2	0.600	0.895					1.000	2.855 2.645	2.9 4.8	
F		Total	617.746	565.006	91.46	22.800	6.020						52.740	8,54

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2. Roller and Ball Bearing Production in Pen-ch'i Iron and Steel Plant

Rate of Rejected Goods (%) Qualified Goods (%) Production (tons) Qualified Chemical 1950 Goods (tons) Reasons Cracks Total Jan 40.620 40.330 99.29 0.290 0.290 0.71 Feb 63.200 62.315 99.6 0.885 0.885 0.4 52.000 49.800 95.77 1.200 1.000 2.200 4.23 65.400 63.985 Apr 99.121 0.840 0.575 1.415 0.879 78.630 78.630 Мау 100.00 . ٠; 51.585 47.085 91.18 4.500 4.500 8.72 Total 351.435 342.145 97.39 2.950 5.500 0.840 9.290 2.61 31.6% 59.2% 9.2%

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B. Statistics and Reasons for Goods Rejected After Plant Inspection

According to reports from the Wa-fang-tien Roller and Ball Bearing Plant, the outer defects such as cracks, lines, sand bubbles, and sediment are reasons for roller and ball bearings being rejected.

During May and June 1950, the Fu-shun Iron and Steel Plant made 15 reports on rejected roller and ball bearings, and the Pen-ch'i Iron and Steel Plant made 13 reports on rejected roller and ball bearings. Goods rejected averaged 35.5 percent of the total roller and ball bearings produced.

Statistics on rejected goods for roller and ball bearings from January to June 1950 were as follows:

Pen-ch'i Iron and Steel Plant -- 14.88 percent of total goods produced (total steel consumption was 318 tons 364 kilograms, of which 47 tons 255 kilograms were wasted)

Fu-shun Iron and Steel Plant -- 14.07 percent of total goods produced (total steel consumption was 231 tons 321 kilograms, of which 32 tons 539.5 kilograms were wasted)

The following table gives further breakdown on rejected goods from January to June 1950:

	No of Rejected Goods	Wt of Rejected Goods (kg)	Value of Rejected Goods (100 million NE currency)	Loss of Working Hours	<u>N</u> ote
Fu-shun Plant	19612	32,539.54	65.07	5.11	Transportation
Pen-ch'i Plant	25422	47,255.36	94.57	7.46	expenses on rejected goods
Total	45034	79,794.90	159.64	12.57	not calculated

According to experts, the "E-grade" roller and ball bearings manufactured by the Pen-ch'i Iron and Steel Plant should be classified as rejected goods. The following table gives the breakdown of elements used in roller and ball bearings steel manufactured by this plant:

Furnace No	Amount of Elements Used Which Are Not up to Standard (\$)	Grade of Goods
2-302	Mn 0.62, Cr 1.68	В
3- 90	Cr 0.88	В
3- 91	C 1.25	В
3- 94	Cr 1.04	В
3- 95	Cr 1.13	. В
3-106	Cr 1.09, Si 0.38	A
3-125	c 0.88, si 0.43	В

- 5 -

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Furnace No	Amount of Elements Used Which Are not up to Standard (%)	Grade of Goods
4- 76	Cr 1.69	В
4-105	c 0.70	В
4-106	c 0.85	В
4-112	c o.8o	В
4-116	c 0.78	В
4-138	Cr 1.71	В
3-171	Cr 1.94	В
1-115	Cr 1.99, Si 0.48	В
1-116	Cr 1.80	В
4-201	S 0.031	A
1-170	S1 0.58	В
3-260	P 0.035	В
1-179	Cr 1.73, Si 0.55	В
1-171	P 0.045	В

Note: The standard amount of elements used in roller and ball bearing steel are as follows:

C	0-9-1-2%	C	. 1	.2-1.
.Si	0.35%	P	0	.03%
.s	0.03%	M		6d



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- 6 -

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